Seeing the Forest for the Trees: Identifying, Analyzing, and Prioritizing At-Risk Properties through Silo-Busting Data Analytics

Sean Alaback, Harvard University
Jorrit de Jong, Harvard Kennedy School
Glendean Hamilton, Harvard Kennedy School
Liz Murphy, City of Fitchburg, MA
Judy Perlman, The Cloudburst Group
Today’s Agenda

1. Overview of the Innovation Field Lab
2. Meet a Partner City: Fitchburg, MA
3. The Innovation Package
4. CityNexus™ in Action
5. Accomplishments & Challenges
Innovation as Problem-Solving
Three Goals for the Innovation Field Lab

- Results for the Cities
- Experiential Learning for Students
- Action Research and Benchmarking
How can we tackle the problem of problem properties in order to reduce blight, crime and tax delinquency and improve safety and health of living conditions?
"I want some way to map what’s going on at the neighborhood level."

"We never have enough time to get through the items on our problem property watch list."

"We know the assessor has address data, but we use the yellow pages instead."

"This property has been a problem for years, what actions have we tried so far?"

"I think we could have predicted this issue if we just had all our information in one place."

"Is that the property with the falling-apart garage? Can we look at it?"

"That landlord has been a major pain in the *#%, let’s not work with him again."

"Isn’t the law department already looking at this plot?"

"Does this sound familiar?"
Abandonment is a Process

FIRST ORDER WARNINGS

1. social
   When residents feel unsafe or less confident
   Police Department
   Fire Department
   Health Department
   Public Works

2. fiscal
   When residents stop paying their bills
   Treasury Department
   Law Department

3. physical
   When residents physically abandon their properties
   ISD
   Planning Department
   Law Department

MAYBE TOO LATE
Meet a Partner City: Fitchburg, MA

1. Median Household Income
2. Higher Educational Attainment
3. Property Values and Property Tax Revenues

1. Deferred Property Maintenance
2. Foreclosure and Vacancy Complaints
3. Opioid Addiction Crisis
4. Unemployment, Poverty, and Homelessness Rates
The NICE (Neighborhood Improvement through Code Enforcement) Task Force evolved from the Mayor’s Public Safety committee.

The task force includes participants from:

- Mayor’s Office
- Board of Health
- Fire Department Building Department
- Community Development Department
- Police Department
- Treasurer’s Office Assessor’s Office
- Department of Public Works
- Information Technology

This group developed a Problem Property ordinance.

The ordinance designates problem properties based on a combination of any four of the following in a 12 month period:

- Health, building or fire code violations
- Multiple false fire alarms
- Calls for service that include criminal violations
Fitchburg lacked the resources to purchase cutting edge tools; unlike larger wealthier communities we could not:

- Purchase integrated software programs to manage information related to problem properties
- Hire dedicated staff to analyze the information, identify and survey properties and formulate plans and new strategies.

Prior to our partnership with the IFL, the Task Force’s process was:

- Review and discuss various problem properties and the best course of action for each.
- Properties were referred by complaints and staff identification in the field.
- Properties were not prioritized.
The Innovation Package

- Data Collection and Recording
- Meeting Process Redesign
- Community Engagement
- Data Analytic Tool – CityNexus
Data Collection and Recording

Trash Violation Form

Communicant Name

Communicant Address

Inspector Name and Title

Dear:

The Board of Health has received notification that the property located at 117 Fryewecum Street in Salem, Massachusetts is in violation of one or more of the following Board of Health regulations as indicated:

Placement of Hazardous Materials at curbside. (BOHI Regulation 7, Sec 3.6).
Meeting Process Redesign

60% to Goal!

- **50** Problem Properties
- **25** Interventions
- **70** Formal Complaints

**5% Reduction** | **75% Successful** | **15% Increase**

### Identify Next Steps: Action Tracker

<table>
<thead>
<tr>
<th>Property Address</th>
<th>Issues</th>
<th>Follow up Tasks</th>
<th>Department Responsible</th>
<th>Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Main Street</td>
<td>Tax Lien above $20k</td>
<td>Review legal, tax conditions; 5/1/2016</td>
<td>Collector's Office</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Councilor reports trash, lawn not mowed, and porch falling off</td>
<td>Schedule joint ISD/Health inspection; 5/15/2016</td>
<td>ISD; Health</td>
<td>Rehab loan from the city</td>
</tr>
<tr>
<td></td>
<td>Neighbors make noise complaints</td>
<td>Keep track of any additional complaints</td>
<td>Police</td>
<td></td>
</tr>
<tr>
<td>12 Bridge Avenue</td>
<td>Unpaid water bills</td>
<td>Check with owner</td>
<td>Collector's Office</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Registered under foreclosure ordinance</td>
<td>Check with owner on ability to pay</td>
<td>City Solicitor</td>
<td>Referred for foreclosure prevention counseling</td>
</tr>
</tbody>
</table>
Community Engagement

1. Empower residents to cite and report issues
2. Clearly communicate legal rights and protections
3. Promote use of existing tools and services
4. Preemptively identify and address problem properties
CityNexus in Action
CityNexus in Action

CityNexus reveals:
- 5 police incidents in 2015-2016
- 67 fines from ISD in 2015-2016
- $15,351 in unpaid taxes

### Police Incident Report

<table>
<thead>
<tr>
<th>Datetime</th>
<th>Address</th>
<th>Type</th>
<th>Description</th>
<th>Loc_code</th>
<th>Location_type</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/30/2015</td>
<td>115 SPENCER AVE</td>
<td>Simple Assault</td>
<td>13</td>
<td>Highway/Road/Alley/Street</td>
<td></td>
</tr>
<tr>
<td>4/8/2015</td>
<td>115 SPENCER AVE</td>
<td>All Other Offenses</td>
<td>20</td>
<td>Residence/Home/Apt./Condo</td>
<td></td>
</tr>
<tr>
<td>5/3/2015</td>
<td>115 SPENCER AVE 2</td>
<td>All Other Offenses</td>
<td>20</td>
<td>Residence/Home/Apt./Condo</td>
<td></td>
</tr>
<tr>
<td>12/8/2015</td>
<td>115 SPENCER AVE 2</td>
<td>Burglary/B&amp;E - Residential</td>
<td>20</td>
<td>Residence/Home/Apt./Condo</td>
<td></td>
</tr>
<tr>
<td>1/3/2015</td>
<td>115 SPENCER AVE 2</td>
<td>Theft from a Building</td>
<td>20</td>
<td>Residence/Home/Apt./Condo</td>
<td></td>
</tr>
</tbody>
</table>
CityNexus in Action

RptNum | DateTime     | Address       | Action         |
-------|--------------|---------------|----------------|
14-1-IN | 1/1/14 3:14 4 | ORE ST        | Emergency n    |
14-2-IN | 1/1/14 9:03 4 | DOK DR        | Restore fire   |
14-3-IN | 1/1/14 13:15 4 | ST            | Emergency n    |
14-4-IN | 1/1/14 13:26 4 | IRLEY ST      | Emergency n    |
14-5-IN | 1/1/14 14:07 5 | BASANT ST     | Systems and    |
14-6-IN | 1/1/14 14:56 4 | LOW AVE       | Emergency n    |
14-7-IN | 1/1/14 16:52 4 | RD            | Investigate    |
14-8-IN | 1/1/14 18:26 4 | OVERS AVE     | Investigate    |
CityNexus in Action

Heat Map Example
Accomplishments & Challenges

Sharing among departments

Tracking properties + actions over time

Predicting issues sooner

Prioritizing
Contact Information

Please reach out to our team with comments and questions.

Jorrit de Jong
Jorrit_dejong@hks.harvard.edu

Sean Alaback
Sean@Citynexus.org

Liz Murphy
Lmurphy@fitchburgma.gov

Glendean Hamilton
Glendean_hamilton@hks17.harvard.edu

Judy Perlman
Judy.Perlman@cloudburstgroup.com
Under what conditions could this approach work in your City?